Documentation
1-link Gigabit copper GTap
Model GTap CU 1P

Documentation version : V1

Translated from original manual version 1

Creation date: July, 2024

Last update: July, 2024

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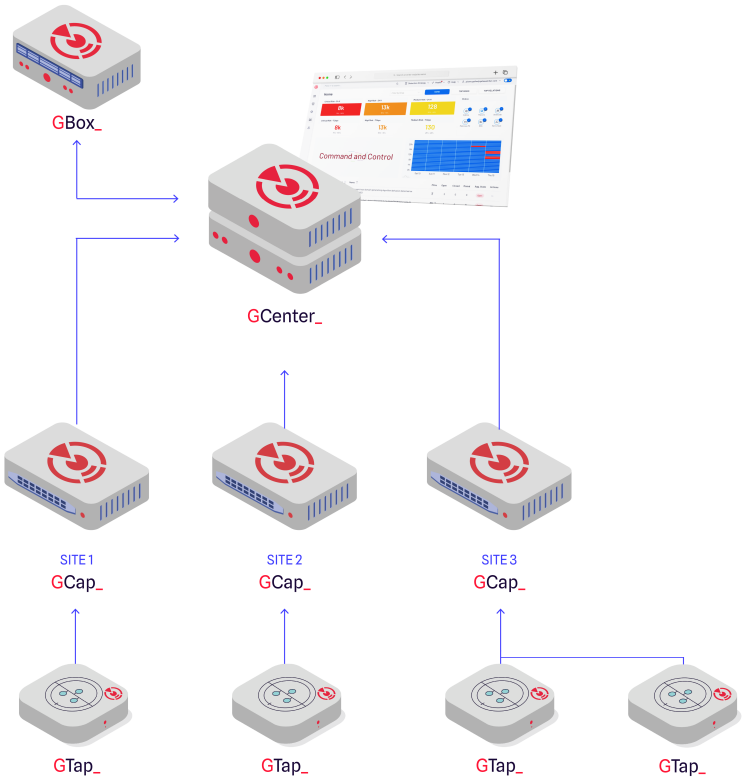
Chapter 1

Description

1.1 Introduction

The AIONIQ® solution is Gatewatcher®'s IDS (Intrusion Detection System) platform.
It includes:

- One or more GTaps
- One or more GCaps
- A GCenter
- A GBox (optional)



1.2 GTap presentation

The GTap model GTAP_CU_1P consists of:

- one Tap to duplicate the network flow connected to the `Net` port
- one external power supply

The GTap takes the following form:

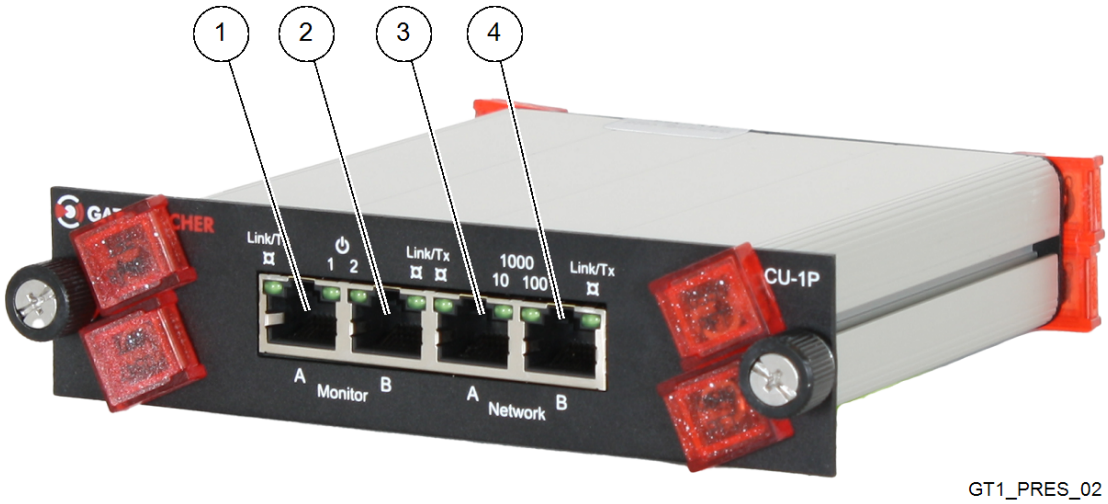
GT1_PRES_01

Note:

The GTAP_CU_1P is sold individually, but a rack of three is available as an option for rack installation.

If necessary, contact the Gatewatcher support or your usual Gatewatcher contact.

1.2.1 GTap input/output list



GT1_PRES_02

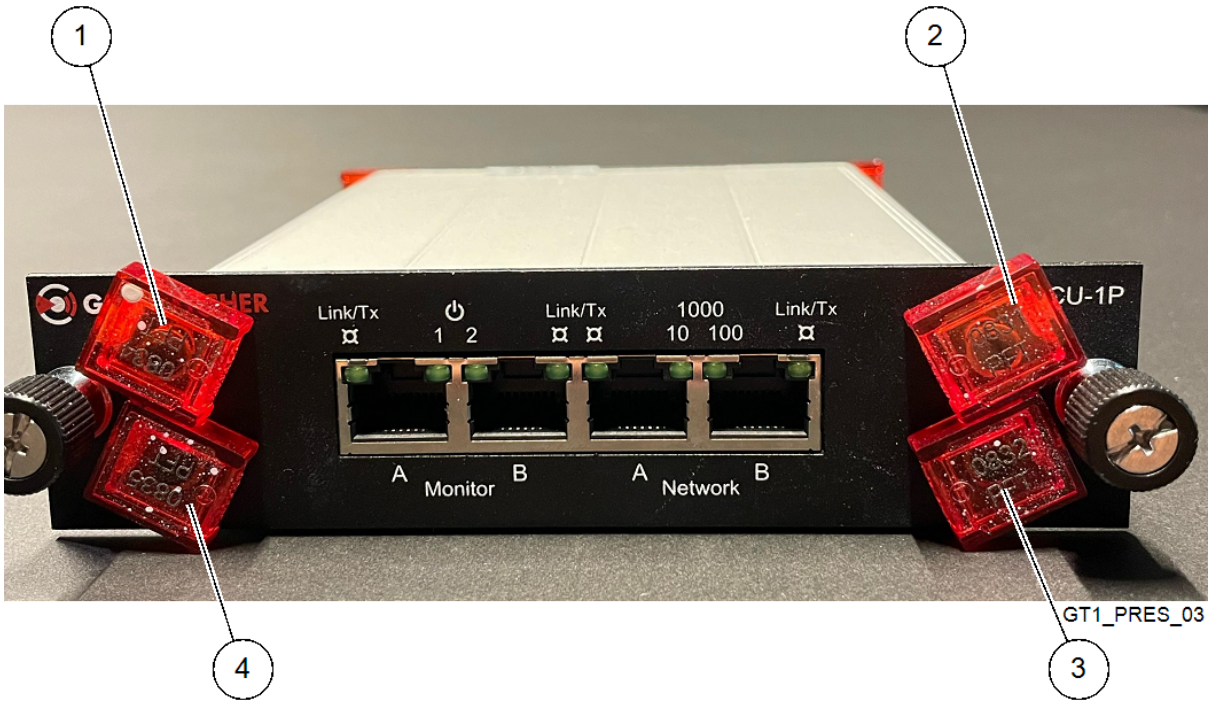
The **GTap** has four ports:

Item	Description
1	Monitor A : Tap output port connected to the sensing probe
2	Monitor B : Tap output port connected to the sensing probe
3	Network A : Tap input port connected to the network to be monitored
4	Network B : Tap input port connected to the network to be monitored

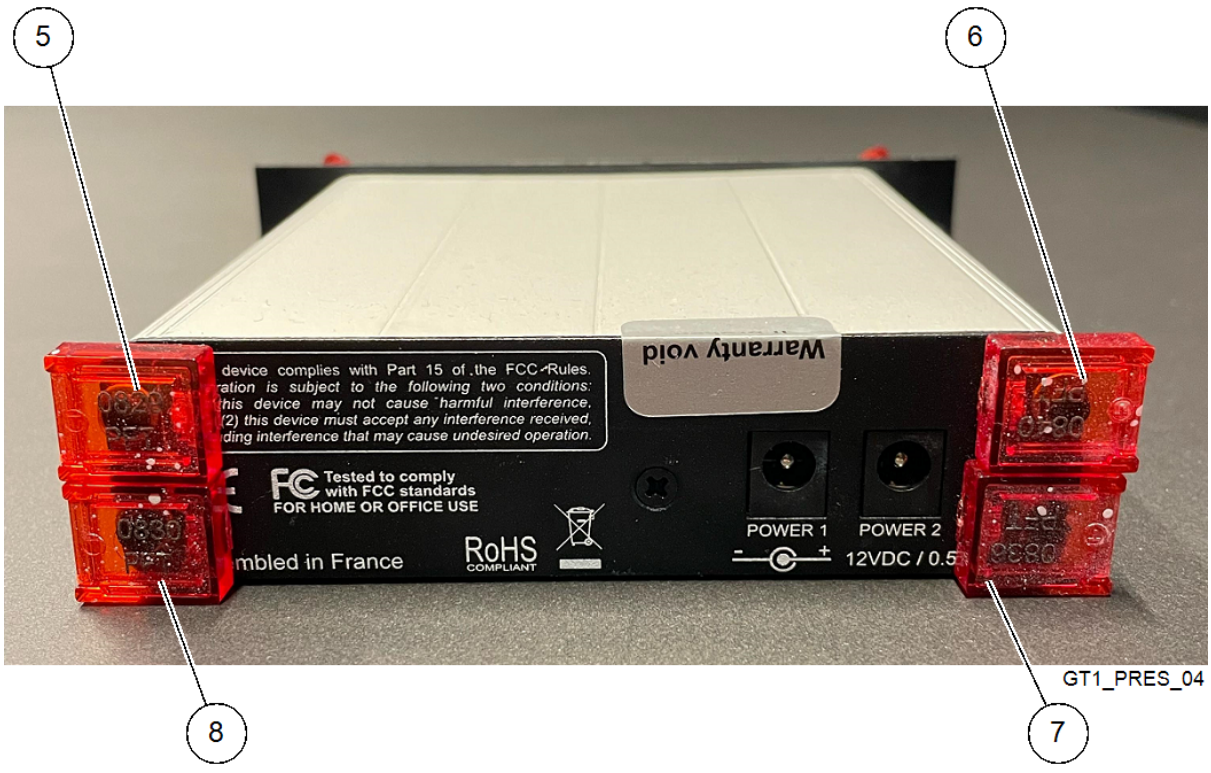
On the rear side, the two power connectors are named <POWER 1> and <POWER 2>.

1.2.2 Security seals

The GTap also has eight security seals, which are marked as follows:



GT1_PRES_03



GT1_PRES_04

Item	Description
1	Seal n°1
2	Seal n°2
3	Seal n°3
4	Seal n°4
5	Seal n°5
6	Seal n°6
7	Seal n°7
8	Seal n°8

1.2.3 Safety labels

The GTap has one silver safety label, located on the back of the unit, which takes the following form:

GT1_PRES_05

The power supply supplied with the GTap also has two silver safety labels, which take the following form:

1.2.4 Package contents

The package includes:

- The GTap model GTAP_CU_1P
- One power supply 100-240VAC / 12VDC 1,5A / C14 socket
- A second power supply 100-240VAC / 12VDC 1,5A / C14 socket (option when ordering)

GT1_PRES_06

Fig. 1: Left side view

GT1_PRES_07

Fig. 2: Right side view

Chapter 2

Operation

2.1 Tap function

Each Tap unit faithfully copies all incoming traffic to the RJ45 ports (Network A and Network B) at the same network speed (10/100/1000 BASE-T).
The Tap monitors the seven OSI layers and duplicates:

- Packs of all sizes and types
- Low-level errors and VLAN traffic

The GTap is not configurable and therefore has no management/administration interface.
The GTap does not memorize traffic.
The GTap is non-intrusive and therefore does not disrupt the traffic to be replicated.
The GTap has no IP address and isolates the network to be monitored from the monitoring device.
Once in place, the GTap enables monitoring devices to be connected and disconnected at will, with no impact on the network link to be monitored.

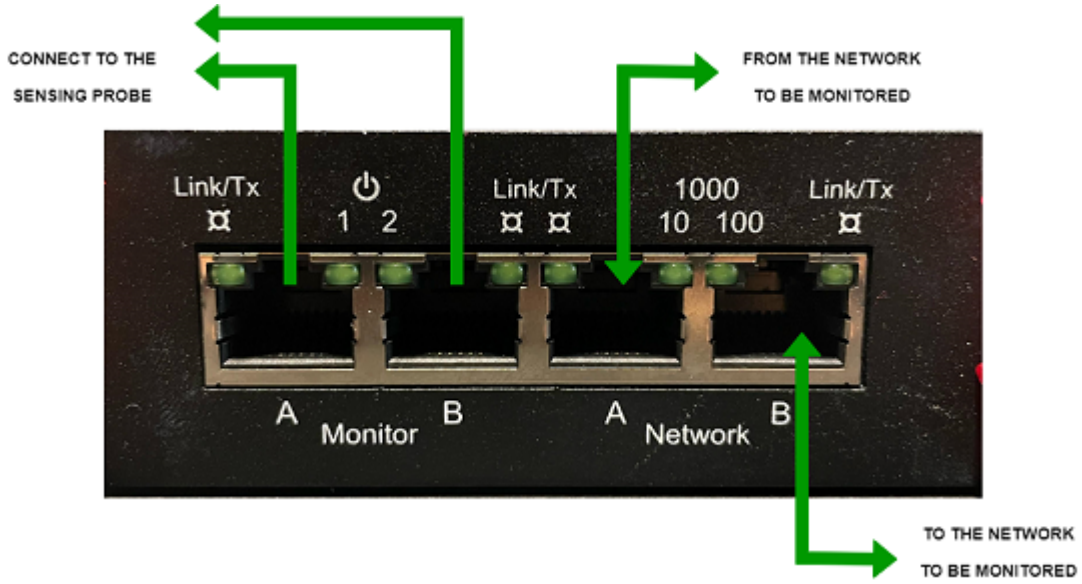
2.1.1 Link Failure Propagation (LFP)

The GTap transmits link failure errors between ports automatically, allowing the network to activate a redundant path, while the Tap stays available for autonegotiation.
The LFP ensures less downtime, and is essential for high availability networks.

2.2 RJ45 network connectors

The GTap_CU_1P has a total of four RJ45 ports:

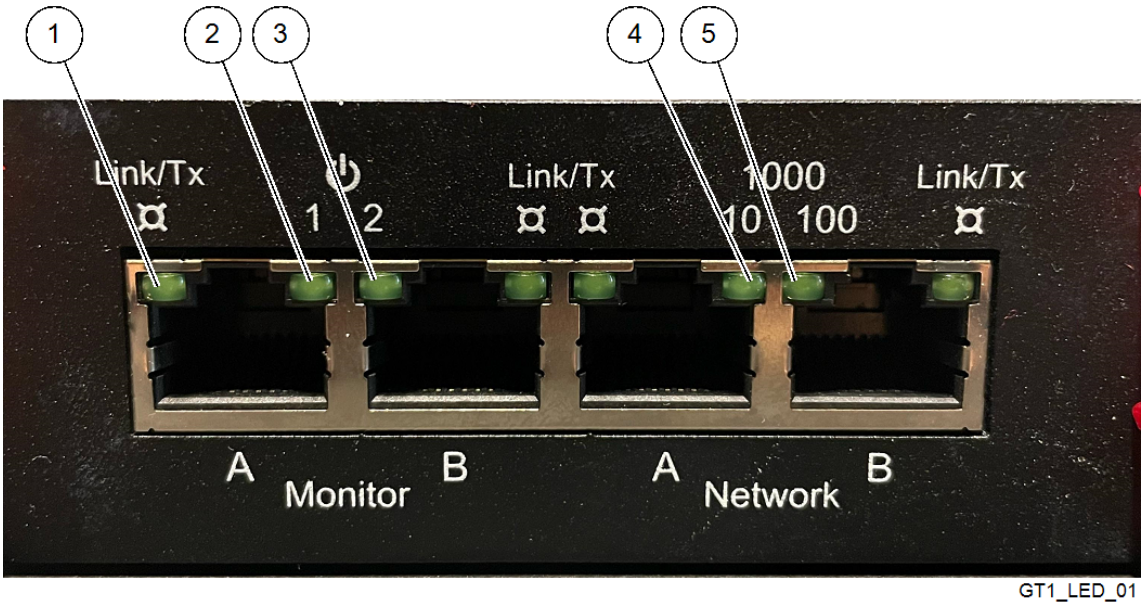
- The network ports to be monitored: `Network A` and `Network B`
- The ports to be connected to the sensing probe: `Monitor A` and `Monitor B`



Note:

Apply the good practices for inserting a Tap on a network.
If necessary, contact the Gatewatcher support or your usual Gatewatcher contact.

2.3 LEDs



GT1_LED_01

Item	Description
1	LED Link/Activity
2	LED <POWER 1>
3	LED <POWER 2>
4	LED 10 Mb/s
5	LED 100 Mb/s

After negotiation on active and connected network ports, the LEDs light up steadily to indicate network speed:

- LED 10 (1) is lit steady for a 10 Mb/s connection
- LED 100 (2) is lit steady for a 100 Mb/s connection
- Both LEDs are lit steady for a 1 Gb/s connection

The flashing means that a signal is detected and only one network cable is connected (LED Link/Activity).

2.4 Power supply

The GTap is equipped with a power supply (or two redundant power supplies if the second one is purchased).
The presence of power is indicated by the <POWER 1> and <POWER 2> LEDs.
In the event of a power supply failure (one of the two LEDs is off), contact the Gatewatcher support.
In the event of a total power failure, the GTap activates its bypass circuits and connects the `Network A` and `Network B` ports together. The `Monitor` ports are disabled when the Tap is not powered.

Note:

The second power supply is optional when ordering the GTap.
Individual power supplies can still be purchased after placing an order.
If necessary, contact the Gatewatcher support or your usual Gatewatcher contact.

2.4.1 Fast Failover

When a power transition event occurs, the network devices renegotiate the link.
This operation can take up to 5 seconds depending on network configuration and can cause a network topology reconfiguration.
The Fast Failover feature helps to reduce this time by trying to keep the link up without renegotiation during the power change event.
With Fast Failover, the network path unavailability lasts between 30 and 300 ms.

Chapter 3

Characteristics

	CHARACTERISTICS
Connectors	4 RJ45 ports, gold plated
LED	2 LED 10/100 per Network port (Speed) 1 LED Link/Activity per RJ45 port 2 LED POWER
Power supply	2 x 12 VDC (1 required for operation, 2 for redundancy)
Power consumption	4W
MTBF (mean time between failures)	250 000 hours
Dimensions (W x D x H)	30 x 113 x 128 mm 1.2 x 4.4 x 5 in
Front panel dimensions (W x H)	143 x 35 mm 5.6 x 1.4 in
Accessories	1 x 90-240 VAC PSU
Operating temperature	0 °C to 50 °C 32 °F to 122 °F
Storage temperature	-22 °C to 70 °C -7.60 °F to 158 °F
Humidity	10 to 90 %, non-condensing
Certifications	RoHS — CE — FCC class A — IEEE 802.3

Chapter 4

Use cases

4.1 Delivery control procedure

4.1.1 Introduction

The GTap comes with eight customized security seals, each with a unique identification to ensure traceability throughout the supply chain.
These security seals have been photographed before shipment to enhance the level of security they offer.
We ask you to take a photo of each security seal and upload them to the shared drive. We will compare them and confirm the integrity of your equipment.

During the procedure, the equipment must be stored in a secure facility.
This facility:

- Must have an access strictly limited to authorized personnel and
- Must be subject to an appropriate monitoring process.

Note:

The device is delivered with customized security labels and unique identification to ensure traceability throughout the supply chain.
The external power supply supplied with the GTap has two silver safety labels.
Please check the integrity of the seals and the correspondence of the identifier.

4.1.2 Preliminary procedure

Note:

Access to the shared drive is provided via an issue opened by our support team on your TAC account.

- Check for a link to the shared drive on your TAC account.
  If this link has not been received, please contact Gatewatcher support to obtain it.

If necessary, contact the Gatewatcher support or your usual Gatewatcher contact.

4.1.3 Procedure

- Open the box.
- Check that all security seals are present.
- Take high-definition photos of each security seal, by photographing two seals per photo, as shown in the examples below. GTap CU_1P has eight, i.e. four photos in total.

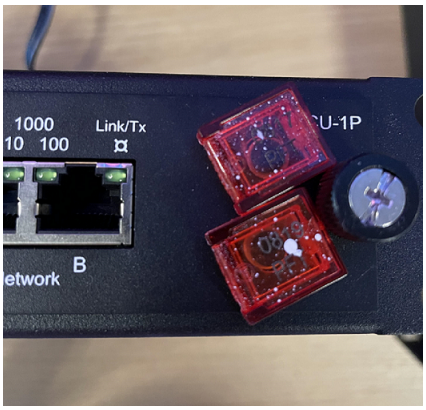


Fig. 1: Example 1

Fig. 2: Example 2

- Take high-definition photos of each side of the power supply, as shown in the examples below. Each power supply has six, i.e. six photos in total.

Fig. 3: Example 1

- Click on the link to the shared drive.
- Upload all the photos on the shared drive to the directory defined below.

Fig. 4: Example 2

The name of the directory is the order reference, and inside it you will find a directory for each GTap (referenced by serial number).

Please upload the photos in the directory corresponding to each GTap.

- Reply to the TAC issue to confirm the photo upload.

  Once we have completed the inspection, we will let you know the status of your equipment's integrity.
- If the integrity is correct, use the GTap.

  If not, please return it.

4.2 Set-up procedure

4.2.1 Preliminary procedure

Important:

Before installation, check the integrity of the equipment by following the *Delivery control procedure*.

Note:

To capture the flow of the network to be monitored, insert the GTap into the existing network. This can be done either:

- By replacing an existing network cable with two tap-off cables to the Tap
- By using the switch's mirroring ports, if so equipped

- Apply the good practices for inserting a Tap on a network.

  If necessary, contact the Gatewatcher support or your usual Gatewatcher contact.
- Do not turn on the GTap.
- If necessary, mount and secure the GTap in a rack (19 inches).
  - To install a rack, screw the GTap into a rack frame to obtain the following result:

Note:

The height of the three GTap rack is 1U.

Fig. 5: Three GTap rack

4.2.2 Procedure

- Connecting the GTap power cables:

  Note:

  Recommendation: connect the GTap power supplies to two different feeders, themselves connected to separate power lines with different circuit breakers.

  - Connect the first power supply :
    - On one side to the <POWER 1> connector on the GTap
    - On the other side to the first feeder

    Important:

    Use only properly grounded power cords and feeders.
    The feeders must remain easily accessible after the installation.

  - Connect the second power supply if present:
    - On one side to the <POWER 2> connector on the GTap
    - On the other side to the second feeder
- Checking the GTap power supply:
  - Check that the <POWER 1> and <POWER 2> LEDs are lit.

    If this is not the case, check that the cables are correctly plugged into the sockets and that, if the rack is used, the rack's feeders are supplied with power.

    Note:

    The <POWER 2> LED is lit only if a second power supply is connected to the GTap.

- Connection to the network to be monitored:
  - Connect the cables of the network to be monitored to the `Network A` and `Network B` connectors.
    - Use category 5e or higher RJ45 UTP cables.

      In the case of 10/100 MB network equipment that does not support auto-crossover:
      - Use two straight cables if network devices are of different types (one DTE and one DCE)
      - Use a straight cable and a crossover cable if the two network devices are of the same type (both DTE or both DCE).
- Checking the network flow to be monitored with the LEDs:

After negotiation on active and connected network ports, the LEDs light up steadily to indicate network speed:
  - LED 10 (1) is lit steady for a 10 Mb/s connection
  - LED 100 (2) is lit steady for a 100 Mb/s connection
  - Both LEDs are lit steady for a 1 Gb/s connection

  The flashing means that a signal is detected and only one network cable is connected (LED Link/Activity).
- Check that the `Network A` and `Network B` LEDs of the Tap are permanently lit.

  In the case of a bay installation, if a Tap unit's LEDs are flashing, check its cables and connections.
- Check the activity of the network to be monitored.

  To do this, check that the LEDs on the Tap unit's `Network A` and `Network B` are flashing rapidly.

- Connection to the sensing probe:
  - Connect the Tap's `Monitor A` and `Monitor B` ports to the sensing probe, using straight or crossover RJ45 UTP cables of category 5e or higher.

    Note:

    The network traffic received on the port `Network A` is duplicated on the port `Monitor A` and network traffic received on the port `Network B` is duplicated on the port `Monitor B`.

    The maximum distance between connected devices is 100 meters.

- Checking the flow of the network to be monitored with the LEDs:

  Note:

  The monitored `Monitor` ports operate at the same speed as the `Network` input ports.

Chapter 5

Appendices

5.1 Safety information

This equipment is not suitable for use in areas where children are likely to be present.
This equipment can have several power supplies.

- Unplug ALL power cords during removal/reinstallation.
- Do not push or force objects through any opening in the chassis frame, as this may result in electric shock or fire.
- Avoid spilling liquid on the equipment, as this may cause electric shock or damage the equipment.

5.2 Legal information

5.2.1 Disclaimer

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5.2.3 Trademarks

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- Gatewatcher®

Chapter 6

Glossary

GBox
: The GBox can operate as a stand-alone unit or in conjunction with the GCenter. It features four complementary analysis engines, plus an engine to detect domain names generated by DGAs.

GCap
: The GCap is the detection probe of the Aioniq solution. It retrieves the network stream from the GTap and reconstitutes the files it sends to the GCenter.

GCenter
: The GCenter is the component that administers the GCap and analyzes the files sent by the GCap.

GTap
: The GTap is a passive device that duplicates the flow of a network and copies it in its entirety, without memorizing or impacting it.

IDS
: Intrusion detection systems are software or hardware systems designed to automate the monitoring of events occurring in a network or on a particular machine, and to be able to report to the system administrator any trace of abnormal activity on the latter or on the monitored machine.

LFP
: Link Failure Propagation

OSI
: The OSI (Open Systems Interconnection) model is a conceptual framework that defines how network systems communicate and send data from a sender to a receiver. It contains seven layers, stacked conceptually from bottom to top.

PSU
: The PSU is the power supply unit.

TAC
: The TAC (Technical Assistance Center) is Gatewatcher's support platform

Tap
: The Tap is a passive device that duplicates the flow of a network.

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